Following is the information on projects to be done for Image Classification using Qiskit, TensorFlow and PennyLane in Quantum Machine Learning:

1. We have created a repository called – *Projects* in the *Master* repository.

Name	Last commit	Last update
Projects	Upload New File - CIFAR10_PennyLane.ipynb	3 hours ago
README.md	Update README.md	2 weeks ago

2. We are planning to do Image Classification using the following technology in Quantum Machine Learning:

   2.1. Qiskit

   2.2. TensorFlow and

   2.3. PennyLane

3. We will form three (3) teams, One for each project

4. The *Projects* repository contains three (3) repositories as follows:

Name	Last commit	Last update
..		
1. Qiskit	Upload New File - CIFAR10_Qiskit.ipynb	8 hours ago
2. TensorFlow	Upload New File - MNIST_TensorFlow.ipynb	8 hours ago
3. PennyLane	Upload New File - CIFAR10_PennyLane.ipynb	8 hours ago

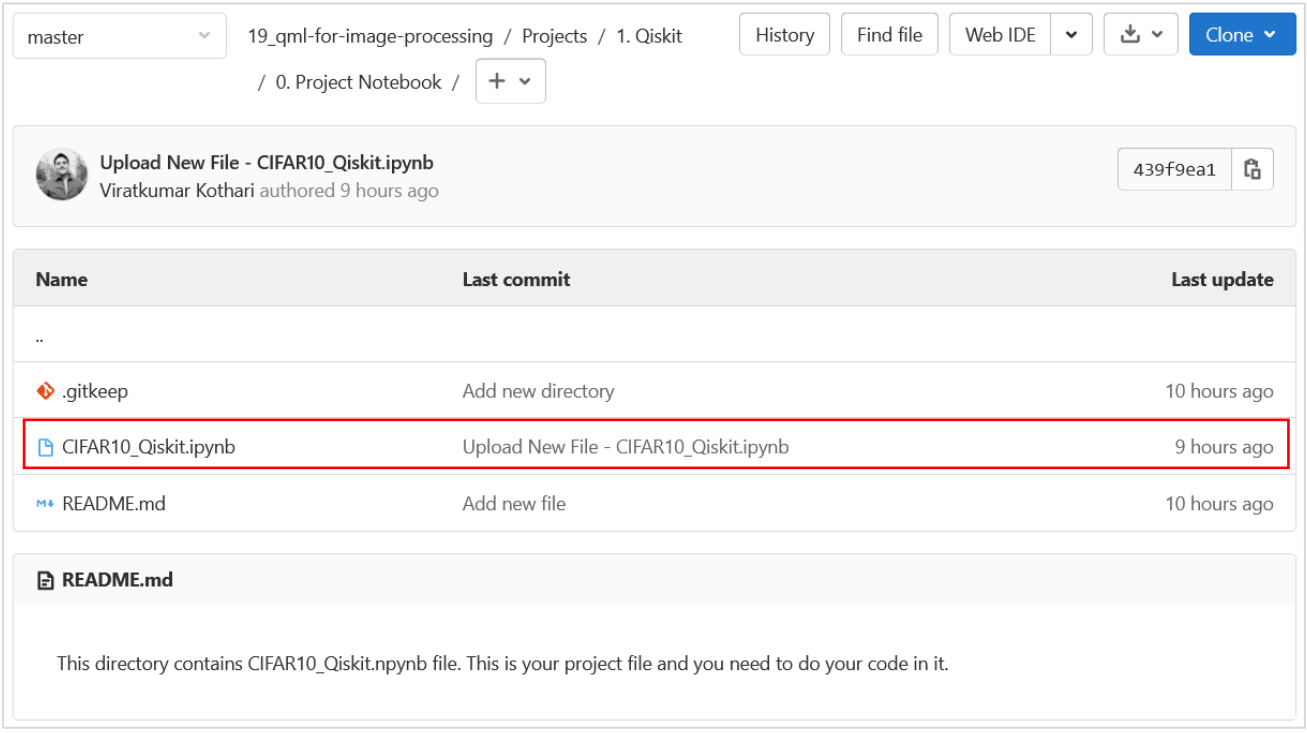
5. Each of the above repositories contains the following:

Name	Last commit	Last update
..		
0. Project Notebook	Upload New File - CIFAR10_Qiskit.ipynb	9 hours ago
1. Reference Material	Upload New File - MNIST_Qiskit.ipynb	9 hours ago
.gitkeep	Add new directory	10 hours ago
README.md	Add new file	9 hours ago

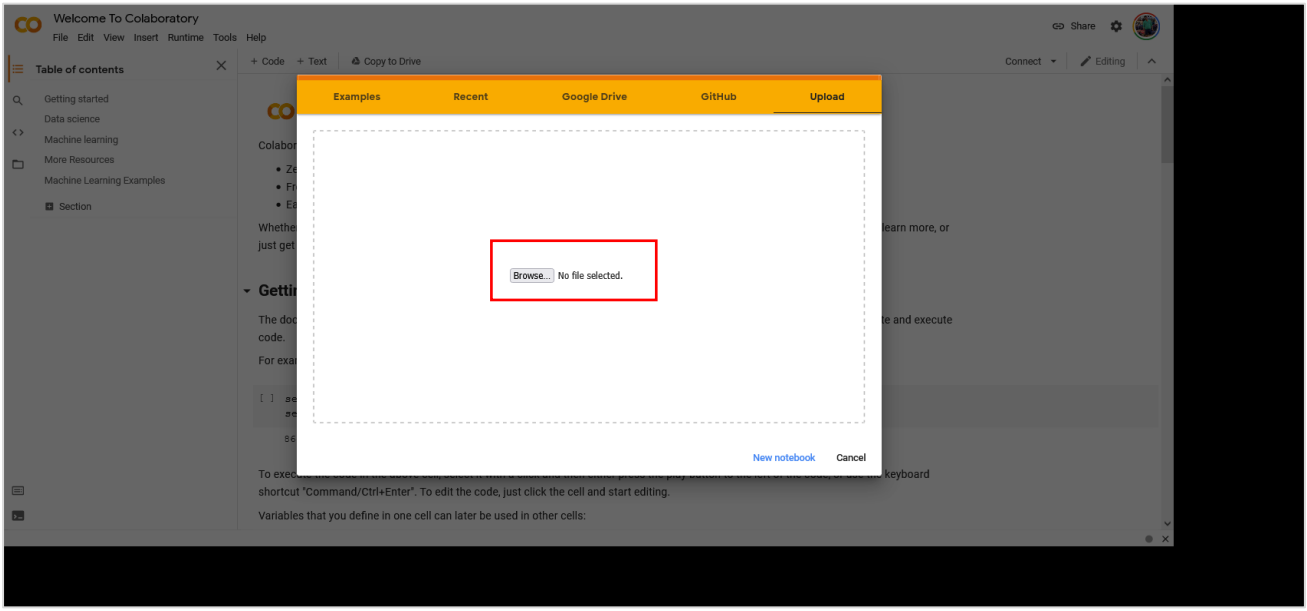
   5.1. README.md: This contains information about setting up an environment for coding. We are going to use *Google Colab* (https://colab.research.google.com/) for coding. So, nothing is required to be installed on your local computer. You just need *Google Account* for using *Google Colab*.

   5.2. 0. Project Notebook: This repository contains a notebook *CIFAR10_<TechnologyName>.ipynb,* e.g., CIFAR10_Qiskit.ipynb, in which you need to

do your code. We are going to use the open-source dataset CIFAR10. The notebook contains few lines of codes, e.g., importing necessary libraries and code for downloading the dataset.



You need to download this notebook, upload it on *Google Colab* to start coding. We are going to use Python as our coding language.



5.3. 1. Reference Material: This repository contains reference material for respective technology, e.g. *Qiskit* folder will have reference material related and notebook related to *Qiskit*. The folder contains:

5.3.1. README.md: This contains a list of various reading materials that may help you to understand the technology.

README.md

QML for Image Processing

Following are few links that may be helpful to understand the Quantum Machine Learning concepts. This also includes few links of similar sample problem which may be useful to solve our image classification problem:

1. https://qiskit.org/documentation/machine-learning/index.html?highlight=quantum%20machine%20learning
2. https://qiskit.org/documentation/machine-learning/tutorials/05_torch_connector.html#Part-2:-MNIST-Classification
3. https://qiskit.org/documentation/machine-learning/tutorials/05_torch_connector.html#Part-1:-Simple-Classification-&-Regression

Quantum Transfer Learning:

1. PennyLane: https://pennylane.ai/qml/demos/tutorial_quantum_transfer_learning.html

5.3.2. A Notebook: A notebook named *MNSIT_<TechnologyName>.ipynb* e.g., MNIST_Qiskit.ipynb. It is the example/tutorial for Image Classification using Quantum Machine Learning with MNIST dataset. It is the best sample to understand the code step-by-step.

Name	Last commit	Last update
..		
.gitkeep	Add new directory	10 hours ago
MNIST_Qiskit.ipynb	Upload New File - MNIST_Qiskit.ipynb	9 hours ago
README.md	Add new file	10 hours ago

Note:

1. We will provide information on how to commit your project notebook in the central repository separately.
2. Please do *NOT* upload anything by yourself; please ask us to do so. It will help to maintain code in order.

We hope that the above information is enough and will help you guide the project repository structure.

Best wishes!!